

# **Applied Radiation and Isotopes**

**Volume 55, 2001**

**List of Contents, Author, and Subject Indexes**



**PERGAMON**

# APPLIED RADIATION AND ISOTOPES

## EDITORS-IN-CHIEF

### B. M. COURSEY

*Ionizing Radiation Division, C229, RADP,  
National Institute of Standards and Technology  
Gaithersburg, MD 20899, U.S.A.*  
Fax: +1 301 869 7682  
E-mail: pamela.hodge@nist.gov

### D. M. TAYLOR

*Cardiff University, Department of Chemistry,  
P.O. Box 912, Cardiff CF1 3TB,  
Wales, U.K.*  
Fax: +44 2920 670 413  
E-mail: davtay@globalnet.co.uk

## EDITORS

D. A. BRADLEY, *School of Physics, University of Exeter, Stocker Road, Exeter EX4 4QL, Devon, UK. E-mail: D.A.Bradley@exeter.ac.uk*

J. CSIKAI, *Institute of Experimental Physics, University of Debrecen, Pf. 105, 4010 Debrecen 10, Hungary. E-mail: csikai@falcon.phys.klte.hu*

K. DEBERTIN, *Homburgstraße 14, D-38116 Braunschweig, Germany. E-mail: klaus.debertin@t-online.de*

R. P. GARDNER, *Center for Engineering Applications of Radioisotopes, North Carolina State University, Box 7909, Raleigh, NC 27695-7909, U.S.A. E-mail: gardner@ncsu.edu*

J. J. M. DE GOEIJ, *Delft University of Technology, Interfaculty Reactor Institute, Mekelweg 15, 2629 JB Delft, The Netherlands. E-mail: j.j.m.deGoeij@IRI.TUDelft.nl*

F. F. KNAPP, *Life Sciences Division, Mail Stop 6229, Building 4501, Oak Ridge National Laboratory, P.O. Box 2008, Oak Ridge, TN 37831-6229, U.S.A. E-mail: jkp@ornl.gov*

A. KUDO, *Research Reactor Institute, University of Kyoto, Kyoto, Japan. E-mail: kudo@rri.kyoto-u.ac.jp*

W. L. McLAUGHLIN, *Ionizing Radiation Division, Mail Stop 8460, National Institute of Standards and Technology, Gaithersburg, MD 20899-8460, U.S.A. E-mail: william.mclaughlin@nist.gov*

P. MITCHELL, *Department of Experimental Physics, National University of Ireland, Dublin (NUID), Belfield, Dublin 4, Republic of Ireland. E-mail: peter.mitchell@ucd.ie*

V. W. PIKE, *Molecular Imaging Branch, National Institute of Mental Health, Building 1, Room B3-10, 1 Center Drive, Bethesda, MD 20892-0135, U.S.A. E-mail: victor.pike@nih.gov*

R. SCHNEIDER, *Mail Stop 8, Geology and Geophysics Department, Woods Hole Oceanographic Institution, Woods Hole, MA 02543-1539, U.S.A. E-mail: rschneider@whoi.edu*

J. S. SCHWEITZER, *41 Silver Hill Road, Ridgefield, CT 06877, U.S.A. E-mail: schweitz@phys.uconn.edu*

B. SOWERBY, *Program Manager, Process, Design & Optimisation, CSIRO Minerals, PMB5, Menai, NSW 2234, Australia. E-mail: brian.sowerby@minerals.csiro.au*

T. Tominaga, *Department of Chemistry, Faculty of Science, University of Tokyo, Bunkyo-ku, Tokyo, Japan*

L. I. WIEBE, *Faculty of Pharmacy and Pharmaceutical Sciences, 3118 Pharmacy Center, University of Alberta, Edmonton, Canada T6G 2N8. E-mail: leonard.wiebe@ualberta.ca*

© 2001 Elsevier Science Ltd. All rights reserved.

### Author enquiries

For enquiries relating to the submission of articles (including electronic submission), the status of accepted articles through our Online Article Status Information System (OASIS), author Frequently Asked Questions and any other enquiries relating to Elsevier Science, please consult <http://www.elsevier.com/locate/authors>

For specific enquiries on the preparation of electronic artwork, consult <http://www.elsevier.com/locate/authorartwork>

Contact details for questions arising after acceptance of an article, especially those relating to proofs, are provided when an article is accepted for publication.

**Frequency:** Published monthly in 2 volumes of 6 issues

**Publication information:** Applied Radiation and Isotopes (ISSN 0969-8043). For 2002, volumes 56-57 are scheduled for publication. Subscription prices are available upon request from the Publisher or from the Regional Sales Office nearest you or from this journal's website (<http://www.elsevier.com/locate/apradiso>). Further information is available on this journal and other Elsevier Science products through Elsevier's website: (<http://www.elsevier.com>). Subscriptions are accepted on a prepaid basis only and are entered on a calendar year basis. Issues are sent by standard mail (surface within Europe, air delivery outside Europe). Priority rates are available upon request. Claims for missing issues should be made within six months of the date of dispatch.

**Orders, claims, and product enquiries:** please contact the Customer Support Department at the Regional Sales Office nearest you: **New York:** Elsevier Science, PO Box 945, New York, NY 10159-0945, USA; phone: (+1) (212) 633 3730 [toll free number for North American customers: 1-888-4ES-INFO (437-4636)]; fax: (+1) (212) 633 3680; e-mail: usinfo@elsevier.com **Amsterdam:** Elsevier Science, PO Box 211, 1000 AE Amsterdam, The Netherlands; phone: (+31) 20 4853757; fax: (+31) 20 4853432; e-mail: nlinfo@elsevier.nl **Tokyo:** Elsevier Science, 9-15 Higashi-Azabu 1-chome, Minato-ku, Tokyo 106-0044, Japan; phone: (+81) (3) 5561 5033; fax: (+81) (3) 5561 5047; e-mail: info@elsevier.co.jp **Singapore:** Elsevier Science, No. 1 Temasek Avenue, #17-01 Millenia Tower, Singapore 039192; phone: (+65) 434 3727; fax: (+65) 337 2230; e-mail: asiainfo@elsevier.com.sg **Rio de Janeiro:** Elsevier Science, Rua Sete de Setembro 111 16 Andar, 20050-002 Centro, Rio de Janeiro - RJ, Brazil; phone: (+55) (21) 509 5340; fax: (+55) (21) 507 1991; e-mail: elsevier@campus.com.br [Note (Latin America): for orders, claims and help desk information, please contact the Regional Sales Office in New York as listed above]

Periodicals postage is paid at Rahway, New Jersey. Applied Radiation and Isotopes (ISSN 0969-8043) is published monthly in 2 volumes of 6 issues by Elsevier Science Ltd., The Boulevard, Langford Lane, Kidlington, Oxford OX5 1GB, UK. The annual subscription in the USA is \$2224. Applied Radiation and Isotopes is circulated by Mercury International Limited, 365 Blair Road, Avenel, NJ 07001, USA.

**POSTMASTER:** Please send address corrections to: Applied Radiation and Isotopes, c/o customer Services, Elsevier Science Inc., 655, Avenue of the Americas, New York, NY 10010, USA.

## CONTENTS OF VOLUME 54

### Number 1

#### Radiochemistry and Radionuclide Applications

H. J. Pant, J. Thýn, R. Zitný and B. C. Bhatt

1 Radioisotope tracer study in a sludge hygienization research irradiator (SHRI)

C. S. Lim, J. R. Tickner, B. D. Sowerby, D. A. Abernethy, A. J. McEwan, S. Rainey, R. Stevens, C. Manias and D. Retallack

11 An on-belt elemental analyser for the cement industry

Yasuhiro Yamada, Hideo Shimasaki, Yukako Okamura, Yuuki Ono and Keiichi Katsumata

21 Mössbauer study of the reaction of laser-evaporated iron atoms with nitrogen molecules in low-temperature argon matrices

P. Blanco Rodriguez, F. Vera Tomé and J. C. Lozano

29 Concerning the low uranium and thorium yields in the electrodeposition process of soil and sediment analyses

#### Radiation Sources and Applications

A. Gordon Emslie and R. Michael Banish

35 The effects of collimator geometry and self-absorption on in-situ mass diffusion measurements

Katy Ben Said, Yann Seimbille, Massoud Fattahí, Chantal Houee-Lévin and Jean Charles Abbé

45 Gamma radiation effects on potassium pertechnetate in carbonate media

B. J. Allen, G. Goozee, S. Sarkar, G. Beyer, C. Morel and A. P. Byrne

53 Production of terbium-152 by heavy ion reactions and proton induced spallation

L. M. N. Távora, E. J. Morton and W. B. Gilboy

59 Enhancing the ratio of fluorescence to bremsstrahlung radiation in X-ray tube spectra

#### Synthesis of Labelled Compounds

William R. Dolbier Jr, An-Rong Li, Cameron J. Koch, Chyng-Yann Shieh and Alexander V. Kachur

73 [<sup>18</sup>F]-EF5, a marker for PET detection of hypoxia: synthesis of precursor and a new fluorination procedure

S. Murugesan, S. J. Shetty, O. P. D. Noronha, A. M. Samuel, T. S. Srivastava, C. K. K. Nair and L. Kothari

81 Technetium-99m-cyclam AK 2123: a novel marker for tumor hypoxia

Xiaodong Zhang, Qingnian Li, Wenxin Li, Rong Sheng and Shuifa Shen

89 Production of no-carrier-added <sup>186</sup>Re via deuteron induced reactions on isotopically enriched <sup>186</sup>W

*Technical notes*  
A. Carpinelli, M. Matarrese, R. M. Moresco, P. Simonelli, S. Todde, F. Magni, M. Galli Kienle and F. Fazio

93 Radiosynthesis of [<sup>123</sup>I]βCIT, a selective ligand for the study of the dopaminergic and serotonergic systems in human brain

C. J. McKinney and M. W. Nader

97 A Peltier thermal cycling unit for radiopharmaceutical synthesis

#### Radioactivity and Radiation Measurements

Maitreyee Nandy and P. K. Sarkar

101 Calculation of excitation functions of nuclides produced in proton induced reactions on <sup>29</sup>Si

B. E. Zimmerman, G. J. Kubicek, J. T. Cessna, P. S. Plascjak and W. C. Eckelman

113 Radioassays and experimental evaluation of dose calibrator settings for <sup>18</sup>F

**J. H. Chao, C. L. Tseng, W. A. Hsieh,  
D. Z. Hung and W. P. Chang**

**Jonas Nilsson, Eva Lund and Anders Lund**

**Kátia A. Fonseca, Marina F. Koskinas  
and Mauro S. Dias**

**Technical note**  
**K. Gul**

123 Dose estimation for repeated phosphorus-32 ingestion in human subjects  
131 The effects of UV-irradiation on the ESR-dosimetry of tooth enamel  
141 Disintegration rate measurement of a  $^{192}\text{Ir}$  solution  
147 Calculations for the excitation functions of the  $^{63}\text{Cu}(\text{p}, \text{n})^{63}\text{Zn}$ ,  $^{63}\text{Cu}(\text{p}, 2\text{n})^{62}\text{Zn}$  and  $^{65}\text{Cu}(\text{p}, \text{n})^{65}\text{Zn}$  reactions

### Nuclear Geophysics

**Fernando Brenha Ribeiro, Arnaldo Roque,  
Paulo César Boggiani and Jean-Marie Flexor**

**G. Hütt, I. Jaek and V. Vasilchenko**

**M. E. Montero Cabrera, M. Ortúeta Milán,  
E. F. Herrera Peraza, H. Herrera Hernández,  
N. Rodríguez Martínez, S. Olivares Rieumont  
and M. C. López Reyes**

153 Uranium and thorium series disequilibrium in quaternary carbonate deposits from the Serra da Bodoquena and Pantanal do Miranda, Mato Grosso do Sul State, central Brazil  
175 Photoionization of radiation-induced traps in quartz and alkali feldspars  
183 Characterization of ophiolites from northern Havana-Matanzas petroleum fields using instrumental neutron activation analysis

### Number 2

### Radiochemistry and Radionuclide Applications

**Dalia Nayak and Susanta Lahiri**

**Dalia Nayak**

**Alan A. Wilson, Li Jin, Armando Garcia, Jean N.  
DaSilva and Sylvain Houle**

**Shih-Chin Tsai, Shoung Ouyang and Chun-Nan Hsu**

189 Alternative methods for the production of carrier-free  $^{66,67}\text{Ga}$   
195 Multitracer techniques: applications in chemical and life sciences  
203 An admonition when measuring the lipophilicity of radiotracers using counting techniques  
209 Sorption and diffusion behavior of Cs and Sr on Jih-Hsing bentonite

### Radiation Sources and Applications

**A. X. da Silva and V. R. Crispim**

217 Moderator-collimator-shielding design for neutron radiography systems using  $^{252}\text{Cf}$

### Synthesis of Labelled Compounds

**M. Cristina Melo e Silva, Luciana Patrício,  
Lurdes Gano, M. Luisa Sá e Melo, Eiko Inohae,  
Shuntaro Mataka and Thies Thiemann**

**Sankha Chattopadhyay, M. K. Das, B. R. Sarkar,  
G. Prabhakar, Kiran S. Mehra and N. Ramamoorthy**

227 Synthesis and biological evaluation of two new radiolabelled estrogens:  $^{[125]\text{I}}(\text{E})$ -3-methoxy-17 $\alpha$ -iodovinylestra-1,3,5(10),6-tetraen-17 $\beta$ -ol and  $^{[125]\text{I}}(\text{Z})$ -3-methoxy-17 $\alpha$ -iodovinylestra-1,3,5(10),6-tetraen-17 $\beta$ -ol  
241 Stabilisation of  $^{[131]\text{I}}$ meta-iodobenzylguanidine at room temperature as organic extract in ethyl acetate/chloroform

### Radioactivity and Radiation Measurements

**J. A. G. Medeiros, C. B. Zamboni, A. L. Lapolli,  
G. Kenchian and M. T. F. da Cruz**

**Kulwant Singh, Kwaldeep and H. S. Sahota**

245 Decay of  $^{72}\text{Ga}$   
261 Study of nuclear quadrupole interactions in different environments of decaying atoms of  $^{75}\text{Se}$  by sum peak method

Angela Kinoshita, Francisco J. H. N. Braga, Carlos F. O. Graeff and Oswaldo Baffa	269	ESR dosimetry of $^{89}\text{Sr}$ and $^{153}\text{Sm}$ in bone
Yong-Jae Kim, Chang-Kyu Kim and Jong-In Lee	275	Simultaneous determination of $^{226}\text{Ra}$ and $^{210}\text{Pb}$ in groundwater and soil samples by using the liquid scintillation counter – suspension gel method
F. I. Habbani and Khaida T. Osman	283	Systematics for the cross-sections of the reactions (n, p), (n, $\alpha$ ) and (n, 2n) at 14.5 MeV neutrons
A. F. Hafez, A. S. Hussein and N. M. Rasheed	291	A study of radon and thoron release from Egyptian building materials using polymeric nuclear track detectors
K. H. Hong, Y. H. Cho, M. H. Lee, G. S. Choi and C. W. Lee	299	Simultaneous measurement of $^{89}\text{Sr}$ and $^{90}\text{Sr}$ in aqueous samples by liquid scintillation counting using the spectrum unfolding method
J. Jordanova, L. Oláh, A. Fenyesi, J. Csikai, B. Leshchenko, A. M. El-Megrab and A. Majeddin	307	Measurements and calculations of neutron spectra modified by iron slabs bombarded by neutrons with energies up to 14 MeV
K. Gul	311	Calculations for the excitation functions of 3–26 MeV proton reactions on $^{66}\text{Zn}$ , $^{67}\text{Zn}$ and $^{68}\text{Zn}$
<i>Technical note</i> Joanne M. O'Meara, Jimmy Börjesson, David R. Chettle and Sören Mattsson	319	Normalisation with coherent scatter signal: improvements in the calibration procedure of the $^{57}\text{Co}$ -based <i>in vivo</i> XRF bone-Pb measurement

### Nuclear Geophysics

Ahmad Termizi Ramli, Abdel Wahab M. A. Hussein and M. H. Lee	327	Geological influence on terrestrial gamma radiation dose rate in the Malaysian State of Johore
M. Borsaru, M. Biggs, W. Nichols and F. Bos	335	The application of prompt-gamma neutron activation analysis to borehole logging for coal
A. Aldahan, G. Possnert and I. Vintersved	345	Atmospheric interactions at northern high latitudes from weekly Be-isotopes in surface air
M. S. Nikulin, M. M. Novak, T. I. Smirnov, V. G. Voinov and G. I. Krasnov	355	A probabilistic description of radioactive contamination: a multivariate model
<i>Technical note</i> R. Hewamanna, C. S. Sumithrarachchi, P. Mahawatte, H. L. C. Nanayakkara and H. C. Ratnayake	365	Natural radioactivity and gamma dose from Sri Lankan clay bricks used in building construction

### Number 3

### Radiochemistry and Radionuclide Applications

Dong Wenming, Guo Zhijun, Du Jinchou, Zheng Liying and Tao Zuyi	371	Sorption characteristics of zinc(II) by calcareous soil-radiotracer study
Vandana and Raj Mittal	377	Matrix effects during potassium and calcium determinations in rice saplings using X-ray spectrometry
<i>Technical note</i> B. K. Kudelin, E. A. Gromova, L. V. Gavrilina and L. M. Solin	383	Purification of recovered tellurium dioxide for re-use in iodine radioisotope production

### Radiation Sources and Applications

Anand Raman, Issac K. Oommen and D. N. Sharma	387	Lyoluminescence characteristics of trehalose dihydrate
---	-----	--

*Technical note*

**B. Ismail, Y. Redzuwan, R. S. Chua and W. Shafiee**

393 Radiological impacts of the amang processing industry on neighbouring residents

**Synthesis of Labelled Compounds**

**Normando Iznaga-Escobar**

399 Direct radiolabeling of monoclonal antibodies with rhenium-188 for radioimmunotherapy of solid tumors — a review of radio-labeling characteristics, quality control and in vitro stability studies

**A. R. Jalilian, P. Seyfi, H. Afarideh and A. Shafiee**

407 Synthesis of a [<sup>18</sup>F]labeled chelidonine derivative as a possible antitumor agent

**Laura García-Salinas, Guillermina Ferro-Flores, Consuelo Arteaga-Murphy, Martha Pedraza-López, Salomón Hernández-Gutiérrez and Juan Azorm-Nieto**

413 Uptake of the <sup>188</sup>Re(V)-DMSA complex by cervical carcinoma cells in nude mice: pharmacokinetics and dosimetry

**Seung Jun Oh, Dae Hyuk Moon, Hyun-Joon Ha, Seong-Wook Park, Myeong-Ki Hong, Seung-Jung Park, Tae Hyun Choi, Sang-Moo Lim, Chang Woon Choi, F. F.(Russ) Knapp Jr. and Hee Kyung Lee**

419 Automation of the synthesis of highly concentrated <sup>188</sup>Re-MAG<sub>3</sub> for intracoronary radiation therapy

**A. Rey, M. Papadopoulos, E. Leon, L. Mallo, Y. Pirmettis, E. Manta, C. Raptopoulou, E. Chiotellis and A. Leon**

429 Synthesis, characterization and biological evaluation of a novel "3 + 1" mixed ligand <sup>99m</sup>Tc complex having an aliphatic thiol as coligand

**Consuelo Arteaga de Murphy, Guillermina Ferro-Flores, Martha Pedraza-López, Laura Meléndez-Alafort, Barbara Y. Croft, Flor de María Ramírez and Juan Padilla**

435 Labelling of Re-ABP with <sup>188</sup>Re for bone pain palliation

**Radioactivity and Radiation Measurements**

**Denise Simões, Marina F. Koskinas and Mauro S. Dias**

443 Measurement of the gamma-ray probability per decay of <sup>42</sup>K

**P. Grau Carles and A. Grau Malonda**

447 Free parameter, figure of merit and ionization quench in liquid scintillation counting

**J. Miranda, R. Ledesma and O. G. de Lucio**

455 Total L-shell X-ray production cross sections by 400–700 keV proton impact for elements with  $34 \leq Z \leq 53$

**J. Y. C. Cheung, K. N. Yu, C. P. Yu and R. T. K. Ho**

461 Dose distributions at extreme irradiation depths of gamma knife radiosurgery: EGS4 Monte Carlo calculations

**C. Cosma, F. Dancea, T. Jurcut and D. Ristoiu**

467 Determination of <sup>222</sup>Rn emanation fraction and diffusion coefficient in concrete using accumulation chambers and the influence of humidity and radium distribution

**Jiansheng Huang, Minhua Wang, Joe Zhao, Ning Gao and Yuzhuo Li**

475 Application of concentrated TiO<sub>2</sub> sols for  $\gamma$ -ray radiation dosimetry

**José U. Delgado, Akira Iwahara, Roberto Poledna, Carlos J. Da Silva and Ricardo T. Lopes**

483 Absolute measurements of photon emission probabilities of <sup>169</sup>Yb

**Akira Iwahara, Antonio E. De Oliveira, Luiz Tauhata, Carlos J. da Silva and Ricardo T. Lopes**

489 Intercomparison of <sup>131</sup>I and <sup>99m</sup>Tc activity measurements in Brazilian nuclear medicine services

**Nuclear Geophysics**

**Sami Hamed Abd El Nabi**

497 Evaluation of airborne gamma-ray spectrometric data for the Missikat uranium deposit, Eastern Desert, Egypt

**Yu. N. Pak, A. V. Vdovkin and A. D. Borodachyov**

509 The effect of heterogeneity in gamma-ray albedo analysis of mineral raw materials

<b>M. Borsaru and Z. Jecny</b>	519	Application of PGNAA for bulk coal samples in a $4\pi$ geometry
<b>Marcelo Godin and Eduardo Galiano-Riveros</b>	527	The subsoil gamma-ray intensity distribution in the Oriental Region of the Republic of Paraguay
<b>R. J. de Meijer, I. R. James, P. J. Jennings and J. E. Koeyers</b>	535	Cluster analysis of radionuclide concentrations in beach sand
<b>J. Asfahani and A. Abdul-Hadi</b>	543	Geophysical natural $\gamma$ -ray well logging and spectrometric signatures of south AL-Abter phosphatic deposits in Syria
<i>Technical note</i>		
<b>A. Sroor, N. Abdel-Basset, A. S. Abdel-Haleem and A. M. Hassan</b>	559	Elemental analysis of two Egyptian iron ores and produced industrial iron samples by neutron activation analysis
<i>Publishers note</i>	563	
<i>Erratum</i>	565	
<i>Events</i>	585	

#### Number 4

#### Radiochemistry and Radionuclide Applications

<b>P. W. Jones and D. R. Williams</b>	587	Chemical speciation used to assess [S,S']-ethylenediaminedisuccinic acid (EDDS) as a readily-biodegradable replacement for EDTA in radiochemical decontamination formulations
<b>H. Inoue</b>	595	Influence of glucose and urea on $^{125}\text{I}$ transport across an anion exchange paper membrane
<b>D. Wenming, W. Xiangke, B. Xiaoyan, W. Aixia, D. Jingzhou and T. Zuyi</b>	603	Comparative study on sorption/desorption of radioeuropium on alumina, bentonite and red earth: effects of pH, ionic strength, fulvic acid, and iron oxides in red earth
<b>R. Collé</b>	611	Calibration of $^{32}\text{P}$ "hot-wall" angioplasty-balloon-catheter sources by liquid-scintillation-spectrometry-based destructive radionuclidian assays
<b>B. E. Zimmerman, M. P. Unterweger and J. W. Brodack</b>	623	The standardization of $^{177}\text{Lu}$ by $4\pi\beta$ liquid scintillation spectrometry with $^3\text{H}$ -standard efficiency tracing
<i>Technical Note</i>		
<b>G. Sobal and H. Sinzinger</b>	633	Methylene blue-enhanced stability of ( $^{99\text{m}}\text{Tc}$ )HMPAO and simplified quality control — a comparative investigation

#### Synthesis of Labelled Compounds

<b>S. Seifert, A. Gupta, R. Syhre, H. Spies and B. Johannsen</b>	637	Ligand-exchange reaction of labile $^{99\text{m}}\text{Tc}(\text{V})$ complexes with SH group-containing proteins
--	-----	---

#### Radioactivity and Radiation Measurements

<b>C. Dueñas, M. C. Fernández, J. Carretero, E. Liger and S. Cañete</b>	645	Gross- $\alpha$ and gross- $\beta$ activities in airborne particulate samples. Analysis and prediction models
<b>M. Ibn Majah, A. Chiadli, S. Sudár and S. M. Qaim</b>	655	Cross sections of (n,p), (n, $\alpha$ ) and (n,2n) reactions on some isotopes of zirconium in the neutron energy range of 10–12 MeV and integral tests of differential cross section data using a 14 MeV d(Be) neutron spectrum
<b>V. Kannan, M. A. R. Iyengar and R. Ramesh</b>	663	Dose estimates to the public from $^{210}\text{Po}$ ingestion via dietary sources at Kalpakkam (India)
<b>S.-Y. Lee and K. Jai Lee</b>	675	Development of a personal dosimetry system based on optically stimulated luminescence of $\alpha$ -Al <sub>2</sub> O <sub>3</sub> :C for mixed radiation fields

<b>D. Amrani and M. Tahtat</b>	687	Natural radioactivity in Algerian building materials
<b>V. S. Kondrashov and S. J. Rothenberg</b>	691	One approach for doublet deconvolution to improve reliability in spectra analysis for in vivo lead measurement
<b>N. Marnada, H. Miyahara, N. Ueda, N. Hayashi and K. Ikeda</b>	695	Precise emission probabilities of gamma-rays of $^{159}\text{Gd}$

### Nuclear Geophysics

<b>S. Bellia, S. Basile, M. Brai, S. Hauser, P. Puccio and S. Rizzo</b>	701	Seasonal variation of air kerma in the "Vulcano Porto" area (Aeolian Islands, Italy)
---	-----	--

<i>Events</i>	707
---------------	-----

### Number 5

#### Radiochemistry and Radionuclide Applications

<b>J. K. Amartey, I. A1-Jammas and R. M. Lambrecht</b>	711	An efficient batch preparation of high specific activity $[^{123}\text{I}]$ and $[^{124}\text{I}]$ mIBG
<i>Review</i>		
<b>P. A. Wahid</b>	715	Radioisotope studies of root activity and root-level interactions in tree-based production systems: a review
<b>V. M. Sbarato and H. J. Sánchez</b>	737	Analysis of arsenic pollution in groundwater aquifers by X-ray fluorescence

#### Radiation Sources and Applications

<i>Technical Note</i>		
<b>Q. Zhi, G. Junsheng and G. Zaiguo</b>	741	Preparation of the thicker americium targets by molecular plating

#### Synthesis of Labelled Compounds

<b>J. Zhang, X. Wang, G. Lu and Z. Tang</b>	745	Synthesis and biodistribution of a new $^{99\text{m}}\text{Tc}$ nitrido complex for brain imaging
<b>T. Ünak, Z. Akgün, Y. Yıldırım, Y. Duman and G. Erenel</b>	749	Self-radioiodination of iodogen
<b>H.-J. Helmke, T. Harms and W. H. Knapp</b>	753	A water target with beam sweep for routine fluorine-18 production

#### Radioactivity and Radiation Measurements

<b>M. I. Abbas</b>	761	HPGe detector photopeak efficiency calculation including self-absorption and coincidence corrections for Marinelli beaker sources using compact analytical expressions
<b>M. García-Talavera, J. P. Laedermann, M. Décombat, M.J. Daza and B. Quintana</b>	769	Coincidence summing corrections for the natural decay series in $\gamma$ -ray spectrometry
<b>T. Boshkova and L. Minev</b>	777	Corrections for self-attenuation in gamma-ray spectrometry of bulk samples
<b>E. Schönfeld and U. Schötzig</b>	785	Comparison of measured and calculated emission probabilities for K and L X-rays following radioactive disintegration processes
<b>A. Wieser, N. El-Faramawy and R. Meckbach</b>	793	Dependencies of the radiation sensitivity of human tooth enamel in EPR dosimetry
<b>J. M. Sharaf</b>	801	Practical aspects of Compton scatter densitometry

<b>T. K. Wang, M.-Y. Wang, F.-H. Ko and C.-L. Tseng</b>	811	Characterization and modeling of the metal diffusion from deep ultraviolet photoresist and silicon-based substrate
<b>I. Kandarakis and D. Cavouras</b>	821	Role of the activator in the performance of scintillators used in X-ray imaging
<b>S. Dubovsky and V. Kirillov</b>	833	Reconstruction of individual absorbed doses by tooth enamel on the base of non-linear simulation of their EPR-spectra
<b>G. Henriksen, S. Messelt, E. Olsen and R. H. Larsen</b>	839	Optimisation of cyclotron production parameters for the $^{209}\text{Bi}(x, 2n)$ $^{211}\text{At}$ reaction related to biomedical use of $^{211}\text{At}$

### Nuclear Geophysics

<b>D. Dworak, J. Łoskiewicz and M. Janik</b>	845	Asymptotic solutions of neutron transport equation and the limits of correct use of diffusion approximation for rocks
<b>A. Drabina, D. Dworak, J. Łoskiewicz and T. Zorski</b>	849	A comparison of theoretical solutions of the three-layer coaxial diffusion approximation of the borehole with measurements at the Zielona Góra calibration facility
<b>L. C. Dinescu and O. G. Dului</b>	853	Heavy metal pollution of some Danube Delta lacustrine sediments studied by neutron activation analysis
<i>Technical Note</i>	861	Natural gamma-emitting radionuclides in Pakistani Portland cement
<b>K. Khan and H. M. Khan</b>	867	
<i>Events</i>	1	Index for Volume 52, 2000

### Number 6

#### Radiochemistry and Radionuclide Applications

<b>Urs O. Häfeli, William K. Roberts, Gayle J. Pauer, Stine-Kathrein Kraeft and Roger M. Macklis</b>	869	Stability of biodegradable radioactive rhenium (Re-186 and Re-188) microspheres after neutron-activation
<b>June Mellawati, Made Sumarti, Yulizon Menry, Sadjirun Surtipanti and Peter Kump</b>	881	Application of X-ray fluorescence spectrometry in multielement analysis of rubber samples
<b>O. G. Dului, M. Epuras and V. Trandafir</b>	887	EPR investigation of the gamma-ray-irradiated natural and tanned collagen

#### Radiation Sources and Applications

<b>Sang Hoon Lee, Robin P. Gardner and Andrew C. Todd</b>	893	Preliminary studies on combining the K and L XRF methods for in vivo bone lead measurement
<b>Michael Faßbender, Dawid de Villiers, Meiring Nortier and Nico van der Walt</b>	905	The $^{nat}\text{Br}(p, x)^{73,75}\text{Se}$ nuclear processes: a convenient route for the production of radioselenium tracers relevant to amino acid labelling
<b>C. Naidoo and T. N. van der Walt</b>	915	Cyclotron production of $^{67}\text{Ga}(\text{III})$ with a tandem $^{nat}\text{Ge} - ^{nat}\text{Zn}$ target

#### Synthesis of Labelled Compounds

<b>A. Elyahyaoui and S. Bouhlassa</b>	921	Extraction of cadmium and iodocadmat species by di(2-ethylhexyl) phosphoric acid from perchloric and phosphoric media
<b>Jörgen Bergman, Olli Eskola, Pertti Lehtikoinen and Olof Solin</b>	927	Automated synthesis and purification of $[^{18}\text{F}]$ bromofluoromethane at high specific radioactivity
<i>Technical note</i>		
<b>Dirk Roeda and Christian Crouzel</b>	935	$[^{11}\text{C}]$ Formaldehyde revisited: considerable concurrent $[^{11}\text{C}]$ formic acid formation in the low-temperature conversion of $[^{11}\text{C}]$ carbon dioxide into $[^{11}\text{C}]$ formaldehyde

## Radioactivity and Radiation Measurements

**B. B. Shriwastwa, Anil Kumar, B. Raghunath, M. R. Nair, M. C. Abani, R. Ramachandran, S. Majumdar and J. K. Ghosh**

**J. D. T. Arruda-Neto, V. P. Likhachev, G. P. Nogueira, G. W. Araujo, S. P. Camargo, G. T. Cavalcante, A. C. Cestari, A. M. Craveiro, A. Deppman, J. W. Ferreira F, F. Garcia, L. P. Geraldo, F. Guzmán, O. M. Helene, M. V. Manso, M. N. Martins, J. Mesa, M. F. Oliveira, G. Perez, O. Rodriguez, M. V. Tavares and V. R. Vanin**

**K. A. C. Daros, L. L. Campos and R. B. Medeiros**

**K. N. Yu**

**P. A. Dokhale, J. Csikai and L. Oláh**

*Technical note*

**M. N. Alam, M. M. H. Miah, M. I. Chowdhury, M. Kamal, S. Ghose and Rumi Rahman**

**941 Rapid non-destructive quantitative estimation of urania/thoria in mixed thorium uranium di-oxide pellets by high-resolution gamma-ray spectrometry**

**947 Transfer coefficient measurements of uranium to the organs of Wistar rats, as a function of the uranium content in the food**

**957 TL response study of the  $\text{CaSO}_4:\text{Dy}$  pellets with graphite for dosimetry in beta radiation and low-energy photons fields**

**961 Theoretical foundation for a simple method for simultaneous measurements of the unattached fraction and activity median diameter of attached radon progeny**

**967 Investigations on neutron-induced prompt gamma ray analysis of bulk samples**

**973 Attenuation coefficients of soils and some building materials of Bangladesh in the energy range 2761332 keV**

## Nuclear Geophysics

**D. M. Bonotto, J. N. Andrews and D. P. F. Darbyshire**

**M. Martinez, C. Woda, R. Walther and A. Mangini**

*Events*

**977 A laboratory study of the transfer of  $^{234}\text{U}$  and  $^{238}\text{U}$  during water-rock interactions in the Carnmenellis granite (Cornwall, England) and implications for the interpretation of field data**

**995 An analytical model for the  $\text{SO}_2^-$  centre, ESR signal at  $g = 2.0057$  in carbonates**

**1005**

